

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claims 1-7 (canceled)

Claim 8 (currently amended): ~~The analytical device of claim 1,~~ An analytical device comprising an electrochemical cell and a sample containment device,

said electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

a connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

a first bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoir and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode, said electrochemical cell operating in an electrolytic mode and generating an electrical field when said

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power source is turned on; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode; and

said sample containment device comprising a sample containment chamber, said sample containment chamber including an opening for introducing a sample into said chamber and being positioned with respect to said electrochemical cell such that an electrical field generated by said electrochemical cell can influence at least one property of at least one component of a sample disposed in said sample containment chamber;

wherein at least one of said first and second electrodes comprises a nickel hydroxide material.

Claim 9 (original): The analytical device of claim 8, wherein said nickel hydroxide material includes a nickel hydroxide compound of the formula $\text{Ni}(\text{OH})_x$ wherein x is 2 or 4.

Claim 10 (currently amended): ~~The analytical device of claim 1,~~ An analytical device comprising an electrochemical cell and a sample containment device,

said electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

a connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

a first bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoir and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode, said electrochemical cell operating in an electrolytic mode and generating an electrical field when said power source is turned on; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode; and

said sample containment device comprising a sample containment chamber, said sample containment chamber including an opening for introducing a sample into said chamber and being positioned with respect to said electrochemical cell such that an electrical field generated by said electrochemical cell can influence at least one property of at least one component of a sample disposed in said sample containment chamber;

wherein both of said first and second electrodes comprises a nickel hydroxide material.

Claim 11 (original): The analytical device of claim 10, wherein said nickel hydroxide material includes a nickel hydroxide compound of the formula $\text{Ni}(\text{OH})_x$ wherein x is 2 or 4.

Claim 12 (currently amended): ~~The analytical device of claim 1,~~ An analytical device comprising an electrochemical cell and a sample containment device,

said electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

a connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

a first bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoir and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode, said

electrochemical cell operating in an electrolytic mode and generating an electrical field when said power source is turned on; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode; and

said sample containment device comprising a sample containment chamber, said sample containment chamber including an opening for introducing a sample into said chamber and being positioned with respect to said electrochemical cell such that an electrical field generated by said electrochemical cell can influence at least one property of at least one component of a sample disposed in said sample containment chamber;

wherein at least one of said first and second electrodes comprises nickel-cadmium.

Claim 13 (currently amended): ~~The analytical device of claim 1;~~ An analytical device comprising an electrochemical cell and a sample containment device,

said electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

a connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

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a first bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoir and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode, said electrochemical cell operating in an electrolytic mode and generating an electrical field when said power source is turned on; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode; and

said sample containment device comprising a sample containment chamber, said sample containment chamber including an opening for introducing a sample into said chamber and being positioned with respect to said electrochemical cell such that an electrical field generated by said electrochemical cell can influence at least one property of at least one component of a sample disposed in said sample containment chamber;

wherein at least one of said first and second electrodes comprises an ionic liquid.

Claim 14 (currently amended): ~~The analytical device of claim 1,~~ An analytical device

comprising an electrochemical cell and a sample containment device,

said electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

a connection between said anodic reservoir and said cathodic reservoir for
permitting communication of electrolyte from at least one of said reservoirs to the other of said
reservoirs;

a first bubble-free electrode having been precharged as a cathode to have hydrogen
absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoir
and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said
cathodic reservoir;

a power source having a positive terminal in electrical contact with said first
electrode, and a negative terminal in electrical contact with said second electrode, said
electrochemical cell operating in an electrolytic mode and generating an electrical field when said
power source is turned on; and

a power source polarity inverting device for switching the contacts between the
terminals of said power source and said first and second electrodes such that said negative
terminal is in electrical contact with said first electrode and said positive terminal is in electrical
contact with said second electrode; and

said sample containment device comprising a sample containment chamber, said sample

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containment chamber including an opening for introducing a sample into said chamber and being positioned with respect to said electrochemical cell such that an electrical field generated by said electrochemical cell can influence at least one property of at least one component of a sample disposed in said sample containment chamber;

wherein at least one of said first and second electrodes comprises an ionic conductor selected from liquid electrolytes, gels, polymer electrolytes, ceramics, glasses, membranes, and combinations thereof.

Claims 15-23 (canceled)

Claim 24 (currently amended): ~~The electrochemical cell of claim 20,~~ An electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

an electrical connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

a first bubble-free hydrogen absorbing electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoirs and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said

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cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode;

wherein at least one of said first and second electrodes comprises a nickel hydroxide material.

Claim 25 (original): The electrochemical cell of claim 24, wherein said nickel hydroxide material includes a nickel hydroxide compound of the formula $\text{Ni}(\text{OH})_x$ wherein x is either 2 or 4.

Claim 26 (currently amended): ~~The electrochemical cell of claim 20;~~ An electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

an electrical connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

a first bubble-free hydrogen absorbing electrode having been precharged as a

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cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoirs and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode;

wherein both of said first and second electrodes comprises a nickel hydroxide material.

Claim 27 (original): The electrochemical cell of claim 26, wherein said nickel hydroxide material includes a nickel hydroxide compound of the formula $\text{Ni}(\text{OH})_x$ wherein x is either 2 or 4.

Claim 28 (currently amended): ~~The electrochemical cell of claim 20;~~ An electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

an electrical connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of

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said reservoirs;

a first bubble-free hydrogen absorbing electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoirs and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode;

wherein at least one of said first and second electrodes comprises nickel-cadmium.

Claim 29 (currently amended): ~~The electrochemical cell of claim 20;~~ An electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

an electrical connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

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a first bubble-free hydrogen absorbing electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoirs and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode;

wherein at least one of said first and second electrodes comprises an ionic liquid.

Claim 30 (currently amended): ~~The electrochemical cell of claim 20;~~ An electrochemical cell comprising:

an anodic reservoir adapted to receive an electrolyte;

a cathodic reservoir adapted to receive an electrolyte;

an electrical connection between said anodic reservoir and said cathodic reservoir for permitting communication of electrolyte from at least one of said reservoirs to the other of said reservoirs;

a first bubble-free hydrogen absorbing electrode having been precharged as a

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cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of said anodic reservoirs and said cathodic reservoir;

a second electrode disposed within the other of said anodic reservoir and said cathodic reservoir;

a power source having a positive terminal in electrical contact with said first electrode, and a negative terminal in electrical contact with said second electrode; and

a power source polarity inverting device for switching the contacts between the terminals of said power source and said first and second electrodes such that said negative terminal is in electrical contact with said first electrode and said positive terminal is in electrical contact with said second electrode;

wherein at least one of said first and second electrodes comprises an ionic conductor selected from liquid electrolytes, gels, polymer electrolytes, ceramics, glasses, membranes, and combinations thereof.

Claims 31-71 (canceled)